GLOSSARY
Terms Used in 241 FW 6, Electrofishing Safety

Click on a letter below to find a term.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

A	**Alternating Current (AC).** Alternating current is any electrical waveform that exhibits alternating (reversing) current polarity. In electrofishing, the electrodes alternate as anode and cathode at the waveform frequency (Hertz or cycles per second). **Anode.** An anode is the electrode exhibiting positive polarity in Direct Current (DC) and pulsed DC electrofishing systems, or the momentary positive electrode with Alternating Current (AC).
B	**Bonding.** Bonding is the permanent mechanical joining of conductive materials to ensure a reliable, low-resistance electrical connection. **Branch Circuit.** The branch circuit consists of the main conductors located between the pulsator (or generator if there is no pulsator) and the electrodes. Electrical energy is transmitted through the branch circuit to the electrodes.
C	**Cathode.** The cathode is the electrode exhibiting negative polarity in DC and pulsed DC electrofishing systems, or the momentary negative electrode with AC. **Circuit Breakers.** A circuit breaker is a device that monitors electrical current and automatically opens the circuit when the current exceeds an acceptable magnitude. Circuit breakers protect the equipment, not the operator. **Conductor.** A conductor is capable of sustaining a voltage gradient and allowing the flow of electrical current. Wire, cable, and other metal hardware (e.g., boat hulls, bolts, screws, guard rails, insulated wires, engine cowls, fish-holding tanks) are examples of conductors. **Condulet.** Part of an electrical conduit wiring system, a condulet (or junction box) is a container for electrical connections that is meant to deter accidental touching of the connections and to protect the wiring from mechanical damage and weather. Condulets usually connect to conduit or electric cables.
D	**Direct Current (DC).** Direct current is an electrical waveform with unidirectional (non-reversing) polarity and either constant or variable amplitude.
E	**Electrical Continuity.** Electrical continuity refers to being part of a complete or connected system that can conduct an electric current. Electrical continuity is important in electrofishing boat/raft safety. All significantly sized metal surfaces in the boat should be in electrical continuity by using wired or bonded connections. **Electrocution.** Electrocution is death caused by an electric shock. **Electrodes.** In electrofishing, electrodes are metal objects used to deliver the electrical energy from the electrofishing unit circuitry into the water. Common materials used for electrodes include stainless steel and other steel alloys, aluminum, and galvanized steel. Electrodes come in a wide variety of shapes and sizes. When using direct current, the electrofishing unit contains an anode electrode(s) and a cathode electrode(s). **Electrofishing Unit.** An electrofishing unit is the gear used for electrofishing. At a minimum, the unit consists of an energy source, emergency stop switch, conductors, and electrodes. The unit also may include a pulsator, metering, and auxiliary circuits for lighting, live well pumps, etc. Two

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	general categories of electrofishing units are watercraft (boat/raft) and portable. We operate portable units while wading. **Electrosedation.** Electrosedation is the use of electricity to induce a relaxed, calm condition. Sedated individuals are more easily handled for procedures such as egg-taking, examination, and attachment of transmitters. **Electroshock.** Electroshock or electric shock is the perception of electrical current. **Emergency Stop Switch.** An emergency stop switch shuts off system power when pressure is applied to the switch. “Mushroom” or “slap-switch” style switch configurations make it easier to activate an emergency stop. (Also known as a “kill switch.”)
F	None.
G	**Ground.** A ground is an electrical connection between an electrical circuit and the earth or to some other conducting object, such as a boat hull. **(1)** For boat/raft electrofishing, the metal boat hull or rowing frame (raft) are the primary ground connections to which all other significant metal surfaces (generator, pulsator, metal rails, metal cord reels, etc.) are securely wired or bonded so that there are not any differential voltages to create a shock hazard. Small isolated pieces of metal (such as metal brackets on the operator seat) do not need to be wired or bonded. **(2)** For boats with non-conductive hulls, a metal strip/plate is used as the primary ground connection.
H	None.
I	**International Electrotechnical Commission (IEC).** The IEC sets international standards for electrical products. **Isolation Transformer.** An isolation transformer is a transformer that has no wired circuit between its primary and secondary windings, i.e., infinite resistance. We use isolation transformers to allow the generator’s frame to function as the primary ground for the electrofishing system independent of a neutral connection. Incorporating an isolation transformer in the circuit between the generator and pulsator allows you to use a generator with the neutral connection intact.
J-M	None.
N	**National Electrical Manufacturers Association (NEMA).** NEMA sets common standards for electrical products. **Netter.** The netter is the person who nets the fish or other aquatic organisms during electrofishing operations. **Neutral Connection.** A neutral connection is an electrical connection between the generator windings and the generator case (generator exterior). Most generators provide access to the internal windings that allow you to ground the output terminals to the generator frame. This internal wiring is called the neutral connection. Depending on the generator’s design, this connection may be a single jumper between two wire lugs or a complex, multi-wire interconnection. It is often

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	necessary to remove the neutral connection or purchase a generator without a neutral connection ("floating neutral generator") to avoid the malfunction of certain types of pulsators. Do not confuse the neutral connection with the equipment grounding circuits that must never be removed. If you must remove the neutral connection, seek professional assistance.
O	None.
P	**Prod Pole.** A prod pole is a hand-held, moveable electrode used in watercraft electrofishing, often larger than backpack electrode poles. **Pulsator (control box).** The pulsator is the control unit that converts the input power (AC or DC) to appropriate waveforms of DC, pulsed DC, or AC for delivery to the electrodes. The pulsator is also called the control box. **Pulsed Direct Current (PDC).** PDC is a modification of DC in which the waveform transitions from zero to a maximum (voltage, current, or power) at regular intervals.
Q	None.
R	**Root-Mean-Square (RMS).** RMS is a precise measurement of AC voltage or current that allows for direct calculations of power. It approximates DC average voltage or average current.
S	**Safety Switch.** A safety switch (also called a deadman switch) is in a low-voltage (less than 24 volts), secondary circuit that requires constant manual pressure to close the circuit. It allows electrical current to flow in the main electrofishing circuit. **SOOW Cable.** The letters in 'SOOW' stand for cable properties. The 'S' means 'Service' (heavy-duty grade). The 'OO' means the cable has oil resistant conductor insulation and jacketing. The 'W' means the cable is weather and water resistant. Overall, SOOW cable resists oil, solvents, water, ozone, aging, and abrasion. It is also flame retardant, flexible, and durable and rated at 600 V RMS. **SJOOW Cable.** The letters in 'SJOOW' stand for cable properties. The 'S' means 'Service' (heavy-duty grade). The 'J' stands for 'Junior," meaning that the rating is 300 V RMS. The 'OO' means the cable has oil resistant conductor insulation and jacketing. The 'W' means the cable is weather and water resistant. Overall, SJOOW cable resists oil, solvents, water, ozone, aging, and abrasion. It is also flame retardant, flexible, and durable.
T	**Throwable Anode.** A throwable anode is a portable, hand-held electrode typically used in conjunction with tow-barge or watercraft electrofishing that may be thrown into habitats and retrieved via the power cord. The effectiveness of throwable anodes depends on the attraction (galvanotaxis) response.
U-V	None.
W	**Watertight (weatherproof).** A watertight enclosure is one that is more protected than one called "weather-resistant" (NEMA type 4 and 4X, IEC IP56). **Weather-resistant.** A weather-resistant enclosure is one that protects against weather hazards

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	such as rain and sleet (NEMA type 3 and 3s, IEC IP54).
X-Z	None.